PCC- CVE202-T-INTRODUCTION TO FLUID MECHANICS

Name of the Faculty   :   Ms. Manju Godara

Discipline   :   B.Tech in Civil Engineering

Semester   :   IV (2nd Year)

Subject   :   Introduction to Fluid Mechanics

Lesson Plan Duration   :   15 Weeks

Work Load (Lecture / Practical) per week (in hrs.)   :   Lectures – 03

Week	Lecture Day	Theory — Topic (Including assignment / Test)	
1st	1	**Basic Concepts and Definitions** – Distinction between a fluid and a solid	
	2	Density, Specific weight, Specific gravity	
	3	Kinematic and dynamic viscosity	
2nd	4	Variation of viscosity with temperature	
	5	Newton law of viscosity	
	6	Vapour pressure, boiling point	
3rd	7	Cavitations, surface tension, capillarity,	
	8	Bulk modulus of elasticity, compressibility.	
	9	**Fluid Statics** - Fluid Pressure	
4th	10	Pressure at a point	
	11	Pascal's law	
	12	Pressure variation with temperature	
5th	13	Pressure variation with temperature	
	14	Density and altitude	
	15	Piezometer, U-Tube Manometer, Single Column Manometer	
6th	16	U Tube Differential Manometer	
	17	Micro manometers, pressure gauges	
	18	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces	
7th		**1st Minor Test**	
8th	19	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces	
	20	Buoyancy and stability of floating bodies	
	21	**Fluid Kinematics**-Classification of fluid flow	
9th	22	Steady and unsteady flow; uniform and non-uniform flow	
	23	Laminar and turbulent flow; rotational and irrotational flow	
	24	Compressible and incompressible flow	
10th	25	Ideal and real fluid flow	
	26	One, two and three dimensional flows	
	27	Stream line, path line, streak line and stream tube	
11th	28	Stream function, velocity potential function	
	29	One, two and three dimensional continuity equations in Cartesian coordinates	
	30	**Fluid Dynamics**- Surface and body forces	
12th	31	Equations of motion - Euler's equation	
	32	Bernoulli's equation – derivation; Energy Principle	
	33	Practical applications of Bernoulli's equation	
13th	34	Venturimeter, orifice meter and pitot tube; Momentum principle	
	35	Forces exerted by fluid flow on pipe bend	
	36	Vortex Flow – Free and Forced	
14th		**2nd Minor test**	
15th	37	Dimensional Analysis and Dynamic Similitude	
	38	Definitions of Reynolds Number, Froude Number, Mach Number	
	39	Weber Number and Euler Number; Buckingham's π-Theorem.	